

place. If an interconnecting carrier chooses to buy DS-1 or DS-3 circuits from a LEC in order to deliver traffic to the LEC's end-office, that carrier should pay the going market price for those circuits.

In addition to call termination, the Telecommunications Act requires the "unbundling" of the local exchange carrier's facilities.<sup>19</sup> There is no valid economic basis for mandatory unbundling, though, just because a competitor requests the unbundled service. Indeed, there are important economic reasons for not requiring unbundling simply for the sake of unbundling. If market participants are forced to unbundle all the facilities or services they provide to end-users (whether they are essential facilities or not) and sell them to competitors, the incentive to develop new technologies or create new services in order to compete more effectively in the marketplace is severely curtailed. Additionally, competitors may attempt to use unbundling strategically to raise incumbent LECs' costs. Clearly, then, a policy of unlimited unbundling, while it may appear to be "procompetitive," can produce serious anticompetitive outcomes. This is especially true if LECs are required to unbundle services involving proprietary technologies. Investment in new technologies depends on the ability of innovators to capture the potential rents from their investment decisions if they succeed, recognizing that some efforts at innovation will fail. If LECs are required to resell what would be considered "proprietary technology" in competitive businesses, LECs will have less incentive to innovate and may instead substitute marketing and brand competition to maintain their market position. Thus, the only interconnection services or unbundled elements which should be regulated by the Commission under the pricing standards of the Telecommunications Act are those services directly associated with call termination.

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<sup>19</sup> This section of the report responds to the NPRM's paragraph 77, "Rather than itemize an exhaustive list of network elements, however, some of which competing carriers may not desire, we further tentatively conclude that the Commission should identify a minimum set of network elements that incumbent LECs must unbundle for any requesting telecommunications carrier, and, to the extent necessary, establish additional or different unbundling requirements in the future as services, technology, and the needs of competing carriers evolve. We seek comment on these tentative conclusions."

## 2. Cost Concepts and Pricing Principles

According to the Telecommunications Act of 1996, prices for unbundled network elements and interconnection services must be "based on the cost... and may include a reasonable profit." As such, these prices should reflect the total service long run incremental cost (TSLRIC), shared and common costs, a reasonable profit, and, during a transition period, embedded costs.<sup>20</sup> Hence, *any costing standards or methodology used to set prices, must, when applied to the entirety of U S WEST's services, give U S WEST an opportunity to recover its total costs.* If U S WEST is required to price unbundled network elements below their respective total cost, it would cause U S WEST to subsidize competitors and would deter other efficient facilities-based carriers from investing in infrastructure.<sup>21</sup>

TSLRIC should be defined as the forward-looking cost avoided (or added) by discontinuing (or offering) an *entire* service or group of services, holding constant the production of all other services produced by the firm. The forward-looking aspect of TSLRIC contains the assumption that the entire service or group of services will be produced with maximum technological efficiency. The "total service" part of TSLRIC refers to the fact that TSLRIC can be calculated for any product sold in a market. In addition to TSLRIC, LECs also have shared costs which are incurred for facilities and resources used in the production of two or more services, and can therefore not be eliminated by the discontinuation of a single service. Examples of shared costs include fiber strands used for transport services, and stand-by modular switching capacity. These *shared* costs are incurred whenever LECs provide services to end-users and should therefore be reflected in retail, wholesale, unbundled network element and call termination prices. Some portion of common costs also need to be recovered. Common costs are incurred through facilities and resources used in the production of all the LECs services.

<sup>20</sup> This paragraph responds to paragraph 126 of the NPRM "we seek comment on precise definitions for the following terms: LRIC, TSLRIC, forward-looking costs, joint costs, common costs, shared costs, and stand-alone costs..."

<sup>21</sup> This argument is fully developed as it applies to wholesale/resale pricing in section C5 below.

Even when they do not have any shared and common costs, firms in competitive industries experiencing rapid technological change do not price their goods and services at TSLRIC. Under standard economic theory, the least efficient, viable producer in an industry would earn zero economic profits. All producers using older technology are, at least in the short-run, forced to either upgrade their plant or exit the market. Conversely, positive economic profits are earned by the most efficient and innovative firms in a competitive market. Therefore, what often occurs in competitive industries is that a production facility makes above average profits during its early years of operation, which decline over time until the firm is forced to upgrade or close down the production facility. However, if industry-wide prices were set at TSLRIC, only the most efficient producer using the latest technology would be able to cover its costs and make a profit. All other producers would be driven from the market, leaving insufficient capacity to meet total market demand. Thus, even without shared and common costs, product prices (adjusted for quality) of firms in competitive industries reflect the incremental cost of the highest cost viable producer who is operating at any-given time.

One of the most pernicious costing practices is assigning or allocating the costs of the local loop to the various usage services, to create the appearance that basic exchange rates are not subsidized by usage services. This traditional practice violates the principle of cost causality, raises the prices of usage services, generates cross-subsidies from high-usage customers to low-usage customers, puts LECs in jeopardy of losing the most profitable high usage customers to competitors and is, therefore, not sustainable in a competitive marketplace. The FCC should establish clear costing standards that would preempt states from arbitrarily allocating the costs of basic local exchange service to usage services.

Prices must also be market-based — taking account of the conditions of demand for a particular service — as well as cost-based. This principle implies that as demand conditions change over time due to competition, technological innovation, or changing customer preferences, the markups of prices over TSLRIC should also change. Markup pricing is widely practiced in competitive markets because all firms must price to recover their shared and common costs,

which they do by marking up prices above TSLRIC. The Commission should allow sufficient flexibility in its pricing rules to enable LECs to negotiate the prices of call termination and interconnection services to reflect market conditions and the supply relationship with interconnecting carriers.

U S WEST is required by state regulations to have sufficient capacity to be "ready-to-serve" end-users' demands for local access lines, dialtone and local calling almost instantaneously. These requirements impose substantial costs on U S WEST, which has to build standby capacity and provide expedited provisioning (e.g., overtime pay, inefficient increments of capacity; and repairing/rearranging facilities instead of planned reinforcement). In any other industry, one would find, at least on occasion, that customers have to wait for the product or service they want. In local exchange telephone service, however, regulators have deemed backlogs or back orders unacceptable. Even private PBXs typically tolerate a greater amount of system blocking than allowed by the regulators. Hence, U S WEST must build sufficient capacity in advance of demand to meet the expected - but uncertain - demand for local access lines. The cost of that capacity, given the obligation to be ready-to-serve, is a necessary part of the TSLRIC of providing basic exchange service.

Finally, full economic costs include, during a transition period, recovery of the embedded costs incurred to meet regulatory service obligations. Barring business assessment miscalculations, proper depreciation methodologies should assure that net book values do not exceed replacement costs. Recall that U S WEST is still under rate of return regulation in all 14 states where it operates as an incumbent LEC. Under these rate of return regimes, LECs should not be required to write off their embedded investments in their regulated books. If such a write-off is required, U S WEST will lack the cash flow from their reduced rate bases to continue high levels of investment in the telecommunications infrastructure.

### **3. Costs of Unbundling and Interconnection**

It should also be recognized that there will be significant additional costs of call termination, interconnection, unbundling and wholesaling of local exchange services. These costs include

losses of production economies, less efficient network capacity planning, negative reputation externalities, reduced contracting flexibility and increased transactions costs. As one example of a possible loss in production economies, consider that approximately half of the local calls handled by U S WEST are intraoffice (i.e., the calling and called parties are served by the same end-office). With interconnection and loss of customers to competing carriers, those same calls will require the services of at least two end-offices, and probably tandem switching and transport as well. Similarly, there will be significant costs incurred in unbundling loops, due, for example, to multiplexing requirements at digital switches, loop servicing such as maintenance, repair and diagnostics, and additional record-keeping requirements.

There will also be significant negative effects on LECs' network planning, increasing the amount of capacity U S WEST must provide for a given level of service quality. For example, when U S WEST is handling a call on both ends, they know where calls originate and, therefore, where they are likely to terminate (based on historical traffic patterns, customer types, changing areas of interest, etc.). When calls are received from competitive local exchange carriers (CLECs), U S WEST will not necessarily know where the calls are originating from, so it faces greater network planning uncertainty, which increases the necessity of emergency jobs to meet immediate demands (prevent blocking, outages, etc.). Suboptimal capacity expansion costs more than planned capacity additions; higher uncertainty will also reduce capacity utilization, especially given high service quality standards, thereby increasing costs.

There is also potential for negative effects on service quality, due to increased traffic loads through tandem switches and the uncertainty regarding which end-office will be terminating calls (increasing the likelihood of blocking, even on intracompany calls, especially tandem switched local calls). Further, there may be an inefficiency introduced because the incumbent LEC's reputation may suffer without justification should a CLEC provide poor service. Recent experience suggests that regulators, competitors and the general public will blame incumbent LECs such as U S WEST Communications for any and all service quality problems due to inaccurate demand forecasts, large increases in tandem switched local calls, etc., even when these

problems are caused by CLECs. Collectively, these factors will substantially increase the business risk facing LECs, thereby increasing their costs of capital. Capital markets simply will not bear those higher risks without correspondingly higher expected rewards. Moreover, U S WEST has real limits on its cash flow and access to capital: it cannot be required to fund the investments needed to meet all the demands of CLECs without limit.

Interconnection agreements should be reached through private negotiations because each interconnection arrangement is different and is subject to a myriad of factors affecting costs and support.<sup>22</sup> The flexibility of private contracting (limited only by broad regulatory guidelines to prevent anticompetitive outcomes) will almost surely lead to superior outcomes relative to a system of private negotiations with an intrusive regulatory overlay.

It is also self-evident that, given the myriad of possible differences in the interconnection arrangements and the wide variety of costs associated with different types of interconnection, "bill and keep" is utterly incapable of capturing these cost differences.<sup>23</sup> If the Commission forces any single interconnection pricing scheme that fails to account for the multiplicity of serving arrangements, it will be encouraging interconnecting carriers to shift as many costs as possible onto LECs, and will also deprive CLECs of economic incentives for cost-reducing behavior (e.g., provide more advance notice and more reliable traffic forecasts). It goes without saying that enforced bill and keep denies LECs fair and reasonable compensation for their costs of terminating calls (which on average are likely to be much greater than CLECs' costs of call termination) and providing interconnection, which is directly at odds with the nation's interest in

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<sup>22</sup> These factors include the costs of network engineering, construction, maintenance and operations; the costs of designing, developing, and implementing operational support systems; and administrative and billing costs. Interconnection prices should also reflect traffic volumes, the commitment duration, the length of advance notice required for new service provision, the reliability of traffic forecasts, the distribution of traffic, the potential need for network redesign (e.g., due to network customization or non-standardization); and the terms of payment (e.g., advance deposits, trade credit discounts, bonding and payment guarantees).

<sup>23</sup> This section of the report responds to paragraph 243 in the NPRM, "We seek comment on whether section 252(d)(2)(B)(i) authorizes states or the Commission to impose bill and keep arrangements. If it does, we also seek comment on whether we must or should limit the circumstances in which states may adopt bill and keep arrangements."

infrastructure investment.<sup>24</sup> If the Commission or state regulatory agencies ignore the economic inefficiencies associated with bill and keep and imposes it anyway, even as an "interim solution," bill and keep should clearly only apply to call termination, not to other services associated with interconnection such as tandem switching and transport or local transport.

#### **4. Pricing of Unbundled Network Elements**

So long as unbundling requirements are not excessive and do not include proprietary services or network elements, the availability of essential unbundled network elements can stimulate competitive entry by increasing the array of possibilities for partial facilities-based entrants. The key to pro-competitive unbundling is pricing. If unbundled elements are priced below their full economic costs, entrants will arbitrage the pricing structure, buying unbundled elements from the LEC even when they could build their own facilities at a lower cost. Moreover, other facilities-based competitors will be harmed as well. U S WEST Media Group needs to spend billions of dollars to upgrade its cable facilities. If the Group is forced to compete with partial facilities-based carriers who can buy loops at below-cost prices, it will be difficult to justify those investments or succeed competitively if it does make them. Thus, the under-pricing of unbundled elements not only harms the incumbent LEC, who is thereby forced to subsidize its competitors, it also reduces incentives for investment by other facilities-based carriers.

The basic economic principle of "cost causality" also requires that costs should be allocated to and recovered from the service or customer which caused them. Under this principle, those CLECs who purchase unbundled network elements should pay prices that cover all of the costs associated with the unbundled network elements they buy, including the costs caused by unbundling services and/or facilities that incumbent LECs now provision in an integrated fashion. Otherwise, entrants such as AT&T and their customers would have their costs subsidized by the end-user customers of U S WEST.

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<sup>24</sup> Voluntary bill and keep, as part of an interconnection agreement negotiated by two private parties is fundamentally different, because the parties would presumably have considered that provision as just one of the many "gives and takes" of the agreement.

## 5. Wholesale Pricing of Local Exchange Service for Resale

If priced appropriately, resale can facilitate competition in three main ways. First, resale of local exchange service will allow competitors to offer customers a "full package" of telecommunications services, reducing transactions costs and increasing convenience for some customers. Second, wholesale pricing of local exchange service may attract entry by firms that add value to local exchange service and/or are very efficient at retailing local exchange service. Third, local exchange service resale can reduce the costs and risks of facilities-based entry and expansion in local exchange service for new entrants by allowing companies to develop a customer base before constructing facilities in a given area. However, as mentioned above, much of this risk is shifted onto incumbent LECs such as U S WEST. None of these benefits require, though, that the wholesale price of local exchange service be set below cost or at an arbitrarily low level in the name of promoting competition in local exchange service.

LEC's should not be forced to price residential local exchange service below full economic costs or give arbitrary and uneconomically large wholesale discounts to resellers of local exchange service. Incumbent LECs will have no incentive to invest in the public network if prices for wholesale services, network elements and interconnection do not recover their full costs. Pricing wholesale local exchange services *above cost*, and at a LEC's economically rational retail rate *minus the actual avoided cost*, will ensure that resale competitors will compete with the LEC on their ability to sell retail telecommunications services efficiently and ensures that neither the reseller nor the LEC will gain an artificial price advantage under a regulatory-imposed price umbrella.

Before U S WEST starts wholesaling residential exchange services, therefore, it should be allowed to rebalance its prices to avoid selling services below their full economic costs. Requiring U S WEST to wholesale local exchange services to resellers below cost would force U S WEST to subsidize competitors such as AT&T with revenues from U S WEST's end-user customers, causing severe financial distress to U S WEST. LEC retail prices must be rebalanced because, as new competitors gain market share in intraLATA toll, access, and business services, the subsidies

that support below-cost pricing for basic residential exchange service will disappear.<sup>25</sup> Not only will U S WEST lose subsidizing customers to competitors, but U S WEST will be forced to lower its prices for competitive services to its remaining customers to salvage market share, recover its investment in providing these services, and discourage uneconomic entry by less efficient competitors. Thus, subsidy flows from high margin services and customers can simply not be sustained in a competitive communications marketplace.

In competitive markets, wholesale discounts are based on the full retail rate, not other discounted or "sale" rates.<sup>26</sup> AT&T, for example, does not wholesale its long-distance services to resellers at discounts off the prices that large customers pay, but at those prices (assuming the reseller can meet the myriad of term, volume and other contract commitments and restrictions). The avoided cost wholesale discount should likewise be applied to the full retail rate U S WEST charges. It should not, for example, be applied to limited duration promotional offerings or any special contract rates that U S WEST negotiates for high volume end-users. These contract rates, which contain ~~term~~ and volume commitments, ~~are~~ a type of wholesale rate themselves, and it would therefore be economically inappropriate to apply an avoided cost discount to these rates for determining wholesale prices for resellers.

Finally, wholesale prices should also reflect the fact that, in competitive wholesale markets, wholesale suppliers negotiate *term and volume* discounts that are related to the *commitments* offered by the purchaser.<sup>27</sup> The conditions of the sale can then be mutually beneficial and cost-effective. It should be noted, though, that U S WEST's carrier-of-last-resort obligations will cause a fundamental problem with mandatory resale. Resellers have an incentive to use this

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<sup>25</sup> This discussion of the need to rebalance local exchange rates relates to paragraphs 187 and 188 in the NPRM, "One action a state could take to address any problems...when retail rates are below costs [would be to restructure] rates so that retail rates in each access area are, on average above TSLRIC." And, "We further note that at least one incumbent LEC has suggested in another proceeding that the Commission consider commencing a proceeding to determine whether it would be appropriate to enter a preemption order requiring that rates for local service exceed the cost of providing that service."

<sup>26</sup> The paragraph responds to the NPRM paragraph 175, "We also seek comment on whether, and if so how, the resale obligation under section 251(c)(4) extends to an incumbent LEC's discounted and promotional offerings. Did Congress intend for such offerings to be provided at wholesale rates, based on the promotional rate minus avoided costs, or does the obligation to provide for resale at wholesale rates only apply to the incumbent LEC's standard retail offerings?"

<sup>27</sup> The next few paragraphs in this report respond to paragraph 175 and 179 of the NPRM, "We seek comment generally about the meaning of the term 'wholesale rates' in section 251 (c) (4)."

obligation to force U S WEST to build out facilities which could become stranded as soon as the reseller, or another carrier, is able to provide duplicate facilities to the customer. For this reason, LECs should not be required to build *new* facilities for unbundled network elements or for resale without privately negotiated contracts containing term commitments and termination penalties. Additionally, if facilities built for end-users under carrier-of-last-resort rules are subsequently stranded, the carrier-of-last-resort should be allowed to recover the cost of the investment through a competitively neutral mechanism.

If the Commission requires U S WEST to wholesale its services at below cost rates or applies an arbitrarily large estimate of avoided costs, such as the 35 percent discount off retail rates recommended by AT&T in some state proceedings<sup>28</sup>, the Commission would distort the "make or buy" decisions of new entrants in the local exchange market. Congress and regulators have expressed a strong belief that facilities-based competition ultimately provides the most effective constraint on the market power of incumbent telecommunications firms. However, building out facilities is more expensive and more risky than merely reselling the facilities of other companies. If the Commission requires U S WEST to wholesale local exchange services below cost, or provides an arbitrarily high avoided cost discount for wholesale services, new entrants who would have built their own facilities (including cable companies and wireless service providers) will choose the lower cost option of reselling U S WEST's facilities, slowing the advent of facilities-based competition, even in market segments which are most likely to be immediately contestable by another facilities-based carrier.

#### **6. The Commission Should Minimize Opportunities for Regulatory Arbitrage**

An inappropriate implementation of the Telecommunications Act of 1996 would lead to numerous instances of destructive regulatory arbitrage.<sup>29</sup> For example, in the absence of

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<sup>28</sup> For example in Utah, AT&T witness Howard Bell called for a 35% discount off retail rates for wholesale service. (See Utah Docket No. 95-2206-01, Direct Testimony of Howard Bell, March 14, 1996, p. 21.)

<sup>29</sup> This paragraph responds to paragraph 184 of the NPRM, "We seek comment on the rates for unbundled network elements and rates for wholesale or retail service offerings." and generally to paragraphs 186 and 187.

substantial retail rate rebalancing, competitors should be prohibited from providing service to a single end-user customer by "mixing and matching" resale with unbundled network elements such as vertical calling features. Otherwise, a reseller such as AT&T might be able to purchase basic exchange or dialtone service at the wholesale avoided cost discount (which is currently below cost) and combine this with vertical calling features priced near TSLRIC (but well below the incumbent LEC's retail rate). This arbitrage strategy would harm the LEC by undermining the pricing structure of vertical calling features and basic residential exchange service. If U S WEST responded to this arbitrage by reducing rates on vertical features, it would reduce the size of the subsidy to basic exchange service. In any case, the subsidy would be eliminated either through the loss of high margin customers or through competitively necessary rate reductions on high margin vertical features.

Similarly, so long as disparities between business and residential service prices are maintained for cross-subsidizing residential service, resellers should not be allowed to resell residential basic exchange service to business customers. In the long run it will be very difficult to sustain pricing differences between business and residential services which are essentially identical.<sup>30</sup>

A final example of regulatory arbitrage would occur if IXC's were allowed to bypass federally tariffed interstate switched access rates either through explicitly purchasing switched access as an unbundled network element at rates based on TSLRIC, or by routing interLATA call through a competing facilities-based local exchange carrier who terminates calls on the incumbent LEC's network through "interconnection" rates based on TSLRIC.<sup>31</sup> The general principle here is that it will be impossible to sustain non-cost based pricing differentials between access charges and local interconnection rates which are, economically and technologically, identical. The Commission

<sup>30</sup> "This paragraph refers to paragraphs 176 and 177 of the NPRM "The provision suggests that Congress did not intend to allow competing telecommunications carriers to purchase a service that, pursuant to state or federal policy, is offered at subsidized prices to a specified category of subscribers (e.g., residential subscribers), and then resell such service to customers that are not eligible for such subsidized service (e.g., business subscribers)...We seek comment on this analysis."

<sup>31</sup> This paragraph responds to paragraphs 164 and 165, among other in the NPRM.

should immediately move to reform IXC access rates, by converting the usage-based CCL and RIC, into a flat rate recovery mechanism.

#### **D. EFFECTS OF INTERCONNECTION RULES ON MARKET STRUCTURE AND COMPETITIVE DYNAMICS**

##### **1. Competitive Strategy and Competitive Advantage**

The interplay of business strategies designed to maximize long-run profit will often result in an industry innovation path significantly different from the innovation path that would be most socially beneficial. While technological opportunities are critical, so too are competitor strategies, core competencies, and existing business assets such as brand or user base. If it is more profitable to maintain or build market share through marketing strategies rather than through investment in technology, investments in new technology will be deferred, perhaps permanently.

Many business strategies are designed to reduce the vigor of price competition. Principal ways of reducing direct head-to-head competition include creating product differentiation, increasing customer switching costs and building barriers to entry.<sup>32</sup> Further, when competing in an emerging market, or when public policies have radically changed the rules of the game, firms try to shape the competitive battleground to favor their particular assets. This "market shaping" can occur through foreclosure of competition by acquisition of key business and technological assets, marketing competition, and adoption of governmentally imposed restrictions on the market.<sup>33</sup>

The various rules being considered by the Commission have quite different implications for middle-to-long run market structure and the magnitude and types of investments in technology and infrastructure. As the rules vary, so too will the choices of competitive strategies and the

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<sup>32</sup> "Differentiation provides insulation against competitive rivalry because of brand loyalty by customers and resulting lower sensitivity to price... The resulting customer loyalty and the need for a competitor to overcome uniqueness provide entry barriers." Michael Porter, *Competitive Strategy*, 1980, p. 36.

<sup>33</sup> For example, AT&T has strived to protect itself from RBOC competition in interLATA services and equipment manufacturing by arguing against removal of the MFJ line-of-business restrictions. See Blau and Harris, "Strategic Uses of Regulation: The Case of Line-of-Business Restrictions in the U.S. Communications Industry," *Markets, Politics, and Social Performance*, Vol. 13, 1992, p. 161-189.

relative advantages that different types of entrants will bring to the competition. With these different outcomes in mind, we now contrast the effects of two very different "stylized" regulatory policy scenarios on competition in local exchange services. We recognize that it is not possible to predict, with accuracy, the development of market structure or the dynamics of competition. However, we do believe that it is possible to identify the "central tendencies" of alternative regulatory regimes, and that a comparison of probable outcomes is valuable information for analyzing the alternative policies.

In the "biased competition scenario," we assume that the LECs' retail prices are not restructured; wholesale prices are set below the cost of local exchange service (because they are established by discounts off of below-cost retail prices); excessive unbundling is required, with inadequate compensation to LECs for the cost of unbundling; and/or unbundled network elements are priced at or below incremental cost (e.g., by requiring "bill and keep"). In the "efficient competition scenario" we assume instead that economically rational retail pricing of local exchange services will be rapidly adopted through rate rebalancing; and that prices of call termination, unbundled network elements and wholesale local exchange service cover full economic costs, reflect variations in costs, and enable LECs to earn a reasonable profit.

## **2. Biased Competition Scenario**

The dynamic effects of pricing wholesale local services below cost on long-term local exchange market structure are likely to be significant. Consider competition between facilities-based competitors and competitors that are providing service by reselling LEC services. Suppose that the economic cost of providing competing facilities-based local exchange service is slightly less than the economic cost of providing that same service through the LEC's system. In such a case, new networks should be competitively viable. Yet, if the price of local exchange service is held below its full economic cost by a combination of federal and state regulatory policies, then resellers would be able to compete with facilities-based competitors by reselling the LEC's services at below cost prices, which may also be below the costs of new facilities-based

competitors. Such pricing will either drive the facilities-based new entrant out of the market or will prevent entry in the first place.

This outcome is economically inefficient; indeed, it is directly analogous to the anticompetitive practice of predatory pricing, with some interesting and telling twists. Legal concerns aside, the economic decision to predate turns on whether there is an incentive for an alleged predator to price below cost, i.e., whether that predator can recoup its losses after the victims are either discouraged from competing vigorously or driven out of the market. With below-cost wholesale prices, a local exchange service reseller would clearly have an incentive to predate because the LEC, not the reseller, would suffer the losses from predation.

Thus, if LEC local exchange services are underpriced, there will be a powerful incentive for entrants to adopt strategies that depend heavily on reselling services rather than on investing in new infrastructure. Reselling also allows near-immediate and large-scale entry that will be pushed by marketing strategies emphasizing the entrant's price, bundled services, brand, and reputation. This reselling strategy should be particularly attractive to major IXC's with existing brand and reputation assets that can be leveraged into the new market. With below cost wholesale pricing of LEC's local exchange services, AT&T and other major IXC's will have strong incentives to enter the residential and small business market, at least initially, as resellers, even if they eventually create their own facilities-based networks.

Such a strategy will entail further investments in brand (keeping AT&T at the top of the ad charts), thereby increasing the barriers to entry to the mass market for nonbranded service providers. This strategy is not new to AT&T, of course: it was and continues to be a key element in their battle to maintain their market share and high profit margins in interexchange services.

Another important element in AT&T's and other major IXC's entry strategies is likely to be the development and marketing of bundled and then functionally integrated service offerings of various different telecommunication services. As services and service choices become more sophisticated and complex, brand and reputation are likely to increase in importance, particularly

in the mass market. The costs for a consumer to switch suppliers will increase as well. Thus, investment in brand and investment in service integration are complements in what we believe to be an extremely attractive strategy for branded resellers. The basic elements of this strategy are: (1) capture initial market share by offering extremely attractive prices (made possible by taking advantage of the availability of below-cost wholesale local exchange service) and taking advantage of existing relations with customers and the reseller's national brand recognition; (2) invest heavily in brand with extensive marketing expenditures; and (3) develop more complex integrated services that increase switching costs for consumers and entry costs for competing firms.

Along these lines, IXC's have recently been involved in a wave of mergers and joint ventures that enable them to provide one-stop shopping by offering integrated packages incorporating a wide range of telecommunications and entertainment services.<sup>34</sup> According to Sprint CEO William Esrey, "Companies that can provide 'one-stop shopping' will fare best in the emerging marketplace."<sup>35</sup> The ability of the three major IXC's and other smaller companies to offer these consolidated packages, including interLATA service, is a formidable source of competitive advantage over incumbent LEC's who are currently restricted from offering in-region long distance service, a critical component of any integrated telecommunications package. Examples of these alliances and packages are:

*AT&T* has recently made acquisitions in wireless, Internet, and broadcast services in order to offer integrated packages of these services. For instance, *AT&T* offers discounts of up to 25% when long distance service is bundled with cellular and paging services. And through its WorldNet(SM) Services, *AT&T* is currently offering free Internet access to its long distance customers, and providing Internet services such as Easy World-Wide Web(SM) which offers *AT&T*'s 800 and 888 customers discounts on developing an Internet presence. In addition, *AT&T* has aligned with DirecTV and United States Satellite Broadcasting Company to offer sales of DirecTV satellite entertainment service and DBS equipment to consumers, with

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<sup>34</sup> The Telecommunications Act of 1996 prohibits IXC's from formally "joint marketing" local exchange service with long distance service until the local RBOC is allowed into in region interLATA markets or 36 months after the passage of the act. Despite this statutory prohibition, there are innumerable ways that IXC's can informally cross-market and jointly brand the various services they supply. In fact, the vague provisions of the federal legislation would be almost impossible to enforce.

<sup>35</sup> "FCC Should Not Consider Access Charge Reform Before Local Competition Develops, Teleport Executive Says," *Washington Telecom Newswire*, December 14, 1995.

special offers for AT&T long-distance and Universal Card customers. According to Robert Allen, "This announcement underscores AT&T's strategy to offer customers an innovative package of services, that include home entertainment, as well as local, long-distance, wireless and on-line services."<sup>36</sup>

MCI created the MCI One program, an alliance with Microsoft, Westinghouse, PointCast, Inc., PageNet, and SkyTel. MCI One offers bundled packages combining services such as long distance calling, cellular, Internet services, one number routing, home security, paging, and calling card services all on the same bill.<sup>37</sup> In a separate alliance with Microsoft and Digital, MCI is also offering businesses one-stop shopping in networking services to "address the growing market for 'intranet' data communications and electronic messaging services."<sup>38</sup>

A joint venture involving *Sprint, TCI, Comcast, and Cox Communications, Inc.*, "will create an unprecedented communications alternative, packaging local telephone, long distance, and personal communications with cable services into a single offering for consumers and businesses.... Consumers can look forward to the widest possible array of communications and entertainment services — delivered with unsurpassed quality and with all the assurances and conveniences of a strong national brand."<sup>39</sup> As of May 1, 1996, Sprint's local telephone operations adopted the Sprint name. In promoting the Sprint name as a local brand, Sprint has launched a new advertising campaign featuring Candice Bergen and the pin drop, familiar icons from Sprint's long distance advertising. As was explained by Darrell Kelley, president of Sprint's local Florida operations, "In a competitive communications environment, it's important that our customers know their local telephone service provider is part of the same company that can connect them with the world seamlessly over Sprint's networks."<sup>40</sup>

This trend towards service integration and one-stop shopping, while initially favorable to consumers, will eventually increase barriers to entry which favor firms, such as the IXC's, with the widest array of communications service offerings. To be competitive in this type of environment, smaller companies might be forced to enter the telecommunications marketplace in multiple markets at the same time, either through multiple product offerings, or through alliances with other providers. This clearly increases the time and cost of entry. Without such a multiple market entry strategy, new entrants might be relegated to unsustainable niche positions. Because technological advantages are often viewed as a matter of lead time, even significant technological

<sup>36</sup> "AT&T Adds Home Entertainment to Consumer Offer," *PR Newswire*, March 25, 1996.

<sup>37</sup> Louise Kehoe, "Microsoft Enters Network Alliance with MCI and DEC," *Financial Times*, April 10, 1996, p. 17.

<sup>38</sup> Louise Kehoe, "Microsoft Enters Network Alliance with MCI and DEC," *Financial Times*, April 10, 1996, p. 17.

<sup>39</sup> Notice of Ex Parte Communications By Sprint in R.95-04-043/I.95-04-044, June 5, 1995.

<sup>40</sup> "Sprint Launches Familiar Weapon in Telecom Brand Battle: Unveils New Image Campaign for Local Division: 'Here's Where it Gets Easier,'" *Business Wire*, May 2, 1996.

advances (that are not integrated with other services) may not be sufficient to capture share in the market — customers will wait until their service provider offers the new technology.

Given the assumptions about public policy underlying this scenario, the likely success of the IXC's resale/marketing strategies should reduce the amount of entry by facilities-based firms as well as reducing their prospects for making substantial inroads into the local exchange mass market. Facilities-based entrants may try to exploit new technologies by developing separate infrastructure, but that strategy takes time and cedes initial market share positions to the already established IXCs. Alternatively, the facilities-based entrants may attempt a two phase strategy of acquiring initial market share through resale, while the new technology is being deployed. This strategy requires the facilities-based entrants to be at least partially successful against the IXCs' marketing and brand name strengths, an unlikely prospect.

Given the handicaps that the facilities-based firms will have under this scenario, fewer firms are likely to enter. Later entry, too, will be discouraged because of the high cost of attracting enough customers to make the facilities-based investment profitable, especially given the higher market shares IXCs are likely to have achieved as resellers, along with their increased "investments" in brand and product differentiation.

A resell/marketing path will also directly impact the investment in, and the timing and deployment of technology. Investment decisions in higher bandwidth infrastructure, for example, will depend, in part, on the market share and expected density of the customer base. To the extent that a first-mover uses the existing network infrastructure, making it difficult for later (or smaller) entrants to take away those customers, investment in new facilities will be discouraged. This, in turn, could mean that diffusion of economically preferable new technologies and infrastructure could be significantly delayed.<sup>41</sup>

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<sup>41</sup> The extreme version of this scenario, under monopoly conditions, is described by Nelson and Winter, *An Evolutionary Theory of Economic Change*, Harvard University Press, 1982, p. 389, "large sheltered organizations tend to be to be and uncreative or narrowly messianic in the R&D they do, rather than ingeniously and flexibly creative. It is not just that monopoly limits the sources of new ideas, but that an industry dominated by a large, secure firm is not a setting that spurs the generating and sensitive screening of good ideas.

In sum, to assess the impact of various policy alternatives (e.g., setting wholesale prices for local service below economic cost) on the success of entry by the smaller non-IXC entrants, it is necessary to understand the nature of the market competition that such a policy would unleash. If smaller, less-well-known firms were the only potential entrants, a below-cost wholesale price, for example, would make their entry easier (though it would still distort their incentives away from investing in new technology). When such entrants must compete with the major IXC's for share, as is clearly the case in this scenario, and when the IXC's also face the same price for wholesale services, the nature and outcome of competition are likely to be substantially altered. As described above, the likely outcome would be a marketing contest among major IXC's that is driven by reputation and brand assets. Marketing becomes even more critical that the IXC's are likely to be reselling the same underlying local exchange service. Thus, below-cost wholesale pricing that may have been intended to allow small entrants to flourish will have, instead, the unintended consequence of providing the major IXC's with substantial advantages against both the incumbent LECs and other competitors. In this scenario, the smaller entrants will not be likely to win a significant share of the mass market, and instead will remain focused on the multiple-line market where customers are better informed about the price and quality of various providers' services and are therefore less likely to be swayed by brand. The delivery of the benefits of new infrastructure and new technology to the mass market is then likely to be slowed.

If policy makers realistically expect the primary competition in the mass telecommunications market to include a diversity of players, it would be dangerous to promote a policy that is oriented to the entrants least likely to enter, and if they did enter, those least likely to succeed. An interconnection policy that is designed to overcome the perceived advantages of the incumbent, with the intent of allowing small and medium sized entrants to compete, may have the effect of creating advantages for large, well-heeled competitors such as AT&T to compete against the incumbent LECs. Further, limited facilities-based entry into the mass market would not necessarily be competitively significant. Such entry might occur in narrow geographic or niche segments of the market that will provide little overall price or innovation pressure.

The true winners under this scenario are not likely to be the relatively unknown entrants, but the IXC entrants, such as AT&T, who have a national reputation and existing customer base. Perhaps in anticipation of such a result, AT&T's CEO, Robert Allen, has expressed supreme confidence in AT&T's prospects in the local exchange marketplace by publicly announcing,

"[The] local services market is being opened up... Are we enthused about that? Frankly, we can almost taste it! And we think we can win at least a third of that market over the next five to ten years. We're ready to play. We're ready to win. And we don't intend to lose any time doing it. By the end of this month we will have taken the first steps to provide local services in all 50 states."<sup>42</sup>

The trade press is equally sanguine about the prospects for the major IXCs. According to a Chilton Research study, which was primarily based on a survey of end-user customer perceptions:

"The most likely winners, according to the study, will be long distance carriers such as AT&T, Sprint and MCI. These companies are well-positioned because of their perceived abilities to provide higher price/value and service satisfaction."<sup>43</sup>

### 3. Efficient Competition Scenario

Successful entry into the local exchange requires access to call termination services throughout the entire network; access to rationally priced network elements and wholesale services; and relatively low switching costs for incumbent customers in at least some market segments. Under this scenario, competitively-neutral interconnection prices and nondiscriminatory access to the network neutralize the key advantages of the LECs, which are based on their prior market position. A relatively low cost for customers to switch suppliers presumes that the customer could switch without incurring significant direct (the actual cost of switching, e.g. a new phone number or the cost of installing and learning to use a new system) or indirect costs (e.g. the uncertainty and risk associated with obtaining critical services from a new supplier).

<sup>42</sup> Remarks delivered at a news conference in Washington DC by Robert E. Allen, Chairman and CEO of AT&T on February 8, 1996.

<sup>43</sup> "Chilton Communications Study on \$40 Billion Battle for Local Telephone Service," *Chilton Research Services*, March 15, 1996, p. 2.

Along with rebalanced retail pricing, a policy that set interconnection and wholesale prices in an economically sound fashion would create a level playing field for new entrants and the incumbent LECs. As long as new entrants have nondiscriminatory access to call termination services from LECs and can lease unbundled local loops and end-office switching from the LECs at true economic costs (including the LECs' reasonable return on their investment to provide those services), both the LECs and the entrants will compete on an equal basis. Indeed, it is just these conditions that US West's Media Group has requested to enter the Atlanta market for local exchange services.

Unbundling essential network elements is sufficient to promote economically efficient entry by facilities-based entrants. Given access to these essential elements at nondiscriminatory prices, such entrants, with efficient technology, could enter the local exchange market on a relatively small scale and, if successful, expand later. Avoiding underpricing for resold services would give newly developed technologies a fair chance to succeed, mitigate some of the IXC's existing brand and marketing advantages, and create incentives for technological innovation and deployment. As IXCs faced more serious challenges from facilities-based entrants they would be pressured to more quickly develop and deploy new technologies themselves. The net effect of marketing that emphasizes actual technological differences is that the mass market will place a greater weight on technical and innovative prowess. This in turn reduces the relative advantage that the major IXCs have versus the facilities-based entrants. Some of these facilities-based firms may be able to gain a viable share of the mass market; others, who start out with a broader target in mind, may find their technologies more suited for specialized niches and would survive by creatively (and relentlessly) seeking new applications for their innovations. In the long-run, the impact of having a larger group of firms pursuing a more diverse set of technological paths should create a more entrepreneurial market environment in which smaller firms may successfully coexist with much larger firms.

Unbundling only the essential elements needed to facilitate entry, providing these elements at a nondiscriminatory price, and providing nondiscriminatory call termination is an economically

sound policy which entails a minimum amount of regulatory (and legal) intervention. It is the best policy for delivering both the price and innovation benefits of competition to consumers. Thus, in this scenario, consumers are likely to be offered services based on a broader range of technologies, the incumbent LEC will have an incentive to further invest and maintain the existing backbone infrastructure, and firms that excel in technology, as well as firms that excel in marketing, will find it profitable to serve the mass market.

#### 4. Long-Lasting Effects of Public Policies on Market Structure

The long-term effects of the FCC's rules need to be considered, even if they are viewed only as transitional. Entry and investment possibilities will be determined by technological possibilities, the structure of the industry, and the business investments made by incumbents. Technology can be a force that changes market structure, but business strategies affect how and often whether those changes take place. How the FCC's rules affect initial entry may be very important in determining the middle and possibly long-run market structure of the telecommunications industry. Rules that are not competitively-neutral may, therefore, have middle- to long-term impacts. In markets where there are significant first-mover advantages or advantages from setting the industry standards with a dominant technology, there may be "path dependence" effects that outlast the short term regulations or market conditions that promoted the dominant technology in the first place.<sup>44</sup>

During the transition period, firms will build their competitive advantages vis-à-vis their direct competitors and potential entrants. Entry will become more difficult over time because competition will intensify and market participants will introduce strategies that have the effect of discouraging entry. Rules such as requiring LECs to wholesale local exchange services at below

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<sup>44</sup> In a standards setting, the classic example described by Paul David is the standard QWERTY typewriter keyboard layout which is allegedly ergonomically inferior to other designs. Paul A. David, "Clio and the Economics of QWERTY," *American Economic Review*, 75 (May 1985), pp. 332-337. The fact that so many individuals and businesses have invested in QWERTY skills and equipment, has prevented adoption of other superior technologies. "This same switch cost issue is important in other fields where product innovations are rapid." James M. Utterback, *Mastering the Dynamics of Innovation*, Harvard Business School Press, Boston, MA, p. 6. The VHS-Betamax and Windows-Macintosh contests to set the VCR and personal computer operating systems standards also reflected the force of path dependency.

economic cost would give companies with brand name and reputation advantages, who decide to take a resale entry strategy (e.g., the major IXC's), an artificial relative cost advantage over those firms that are entering with their own facilities.

As discussed earlier, if a facilities-based entrant could offer a marginally better service at a cost equal to the actual economic cost of the LEC-provided service, that entrant should be able to compete with reseller entrants. But if the reseller can buy local service for less than economic cost, the reseller can profitably underprice the facilities-based entrant. In the initial competition to attract local service customers, the importance of technology and infrastructure competition will be reduced as facilities-based entrants will be disadvantaged relative to the reseller entrant.

In most normal market settings, firms that pursue a "differentiation strategy" usually sacrifice a cost advantage to do so. Michael Porter notes that, "...achieving differentiation will imply a trade-off with cost position if the activities required in creating it are inherently costly..."<sup>45</sup> If resellers are given to access artificially low cost local exchange services, however, those resellers can have both differentiation advantages and low cost advantages.

With their existing brand leverage, ability to identify high margin customers and freedom to target attractive customer segments, combined with lower costs achieved through regulatory arbitrage, the major IXC's can market and promote their way to a substantial market share. With a reduced threat of competition from new technology, the IXC entrants are likely to further stress their competitive strengths on the marketing side of the business.

Over time, some alternative technologies may emerge that will be sufficiently superior in either quality or cost to offset even the artificially low costs from below-cost wholesale prices for LEC local exchange services. Will the IXC resellers be able to hold their market share in the face of this superior technology? That depends on how much future market structure and performance are influenced by which firms dominate the early stages of competition.

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<sup>45</sup> Michael E. Porter, *Competitive Strategy*, Free Press, 1980, p. 38.

We believe that the reseller IXC's are quite likely to be able to maintain their initial advantages through competitive strategies designed to increase the differentiation of the companies and increase the costs for customers to change companies over time. As discussed above, an effective middle-term strategy to complement the initial acquisition of market share (through pricing, promotion and advertising) is a product development strategy that increases the functional integration of various telecommunications services offered by the IXC's. Integration of various services makes it more costly for a consumer to change to another supplier, and still maintain the same level of service integration. (This would be true even if the integration was a perceived rather than a real integration.) For example, a customer would need to find another supplier who offers the same set of integrated services, or piece together the services of two or more suppliers (probably at a higher cost and lower integration level). Thus, though the advent of integrated services is a desirable outcome, it has a potentially negative market structure effect. Switching costs will go up because it will be increasingly costly to change "integrated" carriers. Initial market shares will solidify into long-term market shares. Later entry is made more difficult because successful entry would entail offering an integrated service (which is more difficult or costly for single service companies) Gaining market share becomes more costly because of the increased customer loyalty.<sup>46</sup> Given these advantages and the market positions that the advantages imply, even the pace of innovation and the diffusion of innovation may be driven more by the large brand-name-advantaged firms (e.g., reseller IXC's) than smaller firms whose comparative advantage is in technology.<sup>47</sup>

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<sup>46</sup> Although there is a high incidence of churn in the IXC market, only a small fraction of relatively sophisticated and high margin customers actually churn. IXC's are moving increasingly toward using term commitments in their discount reward plans to tie up high volume customers. This change in strategy is an attempt to increase switching costs, reducing direct price competition for high margin customers. IXC's are offering reward programs such as the "Sprint Sense" program which are very similar to airlines frequent flier plans. Sprint Sense gives long distance callers cash rebates if they make a term commitment by subscribing to Sprint long distance for one year.

<sup>47</sup> While admittedly the incumbent LEC's have some of the advantages of the major IXC's, they also have substantial disadvantages. With their universal service obligation and possibly requirements to provide services or network elements at below cost, plus the need to spend money in the marketing competition against the IXC's, the LEC's abilities to invest in new infrastructure will be compromised. This may lead to reductions in the quality of the existing infrastructure as well.

Finally, the course of entry and market structure induced by interconnection and competition policy will also be reflected in the types of mergers, acquisitions, and joint ventures that are consummated. Partnerships that would make sense under an interconnection policy that heavily favored entry through reselling LEC services might not make sense under a policy that encouraged more facilities-based entry. Reselling strategies may, for example, involve acquisitions where brand name resources or existing customer base are the key assets to be acquired. These initial alliances will have long-run impacts on the choices available to the players in the industry both in terms of determining their firm's competencies and in terms of resources that remain available (through acquisition) in the market.

#### **E. QUALIFICATIONS AND BIOGRAPHIES**

**Dr. Robert G. Harris** (Ph.D., Economics, University of California at Berkeley) is Associate Professor at the Walter A. Haas School of Business, University of California, Berkeley, and a Principal in the Law and Economics Consulting Group. He has published several dozen articles and papers analyzing the effects of public policies on industry performance in telecommunications industries. He is Co-Director of the Consortium for Research in Telecommunications Policy, a collaborative program of the University of California at Berkeley, the University of Chicago, the University of Michigan and Northwestern University. He has testified before Congressional committees and numerous Federal and state regulatory agencies, and has helped to implement ground breaking regulatory reform of the railroad industry at the Interstate Commerce Commission.

**Dr. Dennis A. Yao** (Ph.D. Stanford University Graduate School of Business - Economics and Policy field) is Associate Professor of Public Policy and Management at the Wharton School, University of Pennsylvania, and is a Principal in the Law & Economics Consulting Group. From 1991-1994 he served as Commissioner at the U.S. Federal Trade Commission where he and his colleagues had responsibility for antitrust and consumer protection matters. He is a co-editor of the *Journal of Policy Analysis and Management*, and an associate editor of the *Journal of Industrial Economics*. Dr. Yao has published in leading economics and policy journals in the areas of antitrust, regulation, contracting, innovation and intellectual property, and in the political science and management strategy fields.

**EXHIBIT B**